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USER'S GUIDE TO THE CLARITAS ZIP CODE DATA SET

David L. Reese

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This paper documents the Claritas data set, which is now part of the Center for Naval Analyses' tape library. The file, created in the summer of 1985, contains all the zip codes within 100 miles of 426 Reserve centers. The data set and its contents are described, followed specific uses of the file.

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1.   Enclosure (1) is forwarded as a matter of possible interest.

2.   This Research Memorandum documents the Claritas data set, which is
now a part of the Center for Naval Analyses' tape library. The file
contains all the zip codes within 100 miles of 426 Reserve centers. The
data set and its contents are described, followed by specific uses of
the file.

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USER'S GUIDE TO THE
CLARITAS ZIP CODE DATA SET

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Abstract

This paper documents the Claritas data set, which is now a part of the Center for Naval Analyses' tape library. The file, created in the summer of 1985, contains all the zip codes within 100 miles of 426 Reserve centers. The data set and its contents are described, followed by specific uses of the file.

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INTRODUCTION AND BACKGROUND

By 1991, the Naval Reserve Force (NRF) is programmed to have 76 additional ships, including oilers, amphibious ships, salvage ships, minesweepers, and frigates. Additional personnel will be needed, therefore, to staff these ships. The Center for Naval Analyses (CNA) was requested to assess the availability of Selected Reserve (SELRES) personnel to man these ships in 14 home ports along the east, west, and gulf coasts.[1] Because each ship type requires a different set of rating skills, and because each drill site recruits most of its Reservists locally, the research effort examined the SELRES supply by geographic location. To determine the size and skill distribution of available personnel, analysts used a 100-mile radius around each of the home ports—identified by a list of zip codes—as the primary supply area.

In preliminary studies, the zip codes defining the supply area were collected manually by map, compass, and zip code directory. The preliminary results showed that geographic locations vary in the availability of different ratings. Although Seattle could supply enough personnel in the Operations Specialist (OS) rating, there were not enough in the Engineman (EN) rating; San Francisco was just the opposite—it could supply enough ENs but not enough OSs.

Because geographic skill distributions and requirements vary, and because geographic studies will continue to be needed in the future, the list of sites needed to be lengthened and the zip codes checked for accuracy. To meet this need, CNA compiled a list of 426 locations and contracted the Claritas Corporation to supply a data file that would contain all the zip codes within 100 miles of each site. (Appendix A provides a complete alphabetical listing of the Reserve centers.)

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[1] CNA Research Memorandum 85-73.10, "Manning the Naval Reserve Force," by Beth J. Asch, Oct 1985.

In July 1985, CNA received the data set from the Claritas Corporation. Table 1 is a description of this data set. The format of the data file, the variables within the file, the possible uses of the file, and the data considerations will aid both analysts and computer programmers in the future.

TABLE 1

DESCRIPTION OF CLARITAS DATA FILE

File name:	CLARITAS-ZIPCODES
Tape number:	010628
Record size:	45 characters
Block size:	4500 characters
Tape density:	6250 bpi
Format:	ASCII
Labels:	Yes
Record count:	290801
Sorted by:	*Reserve-number* and *A-zipcode*

THE DATA SET

The Claritas data set is a flat file with 45-character, fixed-length records. Because it is part of CNA's tape library, the file is in ASCII format on a labeled tape. The file contains all the zip codes within a 100-mile radius of 426 Reserve centers. As indicated in the record description in table 2, each record contains 11 variables. The first seven variables describe a Reserve center; the following four fields descibe one of the zip codes within the radius. Therefore, the number of records for each Reserve center depends on the number of zip codes that lie within its 100-mile radius. For example, there are 229 zip codes within the radius of Mayport, Florida; 1,462 within

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TABLE 2

DESCRIPTION OF RECORDS IN CLARITAS DATA SET

Item	Position	Field name and description	Format
1	1–3	*Reserve-number*: uniquely identifies each Reserve center's location—city, state, and zip code—in the data set.	Z(3)
2	4–23	*Reserve-city*: city-name where the Reserve center is located.	X(20)
3	24–25	*Reserve-state*: the state in which the Reserve center is located.	X(2)
4	26–30	*Reserve-zipcode*: the zip code of the Reserve center.	9(5)
5	31	*Naval*: a zero-one flag that indicates a Naval Reserve center at this location.	9(1)
6	32	*Marine-Corps*: a zero-one flag that indicates a Marine Corps center.	9(1)
7	33	*Coast-Guard*: a zero-one flag that indicates a Coast Guard center.	9(1)
8	34–38	*A-zipcode*: one of the zip codes within a 100-mile radius of *Reserve-zipcode*.	9(5)
9	39–42	*Distance*: the distance, to the nearest tenths of a mile, between *A-zipcode* and *Reserve-zipcode*.	999V9
10	44–45	*Reserve-count*: the number of *Reserve-zipcode*s that are within 100 miles of *A-zipcode*.	9(2)
11	43–44	*Closest-Reserve*: indicates which *Reserve-zipcode* in this data set is the closest to *A-zipcode* 0: not the closest 1: the closest any number > 1: the number of equidistant *Reserve-zipcode*s	9(1)

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the radius of Annapolis, Maryland. Consequently, this data file contains 229 records for Mayport and 1,462 for Annapolis.

In each of the 229 records for Mayport, the values of the first seven variables will not change. Because the first variable, *Reserve-number*, is assigned according to the alphabetical order of the *Reserve-city*, *Reserve-state*, and *Reserve-zipcode*, it uniquely identifies the address of each Reserve center in the data set. The next three variables are zero-one flags that indicate the type(s) of Reserve center(s) located at this *Reserve-zipcode*: Naval, Marine Corps, and/or Coast Guard. The values of the next four variables will change. *A-zipcode* is one of the zip codes within 100 miles of *Reserve-zipcode*. *Distance* is the number of miles, to the nearest tenths, between *A-zipcode* and *Reserve-zipcode*. The *Reserve-count* indicates the number of Reserve centers in this data set that are within 100 miles of *A-zipcode*. The *Closest-Reserve* indicates which Reserve center is the closest to *A-zipcode*.

Appendix A lists the *Reserve-number*, the *Reserve-city*, the *Reserve-state*, the *Reserve-zipcode*, the type(s) of Reserve center(s), and the number of zip codes within a 100-mile radius for each of the 426 Reserve centers in this data file.

USES OF THE DATA SET

The format and contents of the Claritas data set could be useful to many geographic manpower supply analysts. Recruiters could use this data base to delineate recruiting areas. Analysts could use it in estimating Individual Ready Reserve (IRR) and SELRES supply.

As noted. an earlier CNA study has already assessed the availability of the SELRES personnel to man the NRF ships at 14 home ports by using the 100-mile radius areas around each site as the primary supply areas.

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A data set such as this would facilitate such studies. One of the primary sources of SELRES personnel is Navy Veterans (NAVETs). Therefore, one aspect of this earlier study required matching Active Navy losses to each of the supply areas. Because some zip codes belonged to more than one supply area, this problem required some extra consideration. Of the 14 ports listed in table 3 as supply areas, eight of them intersect with another supply area, implying that these areas compete for personnel. Figure 1 shows the intersecting supply areas on the west and northeast coasts.
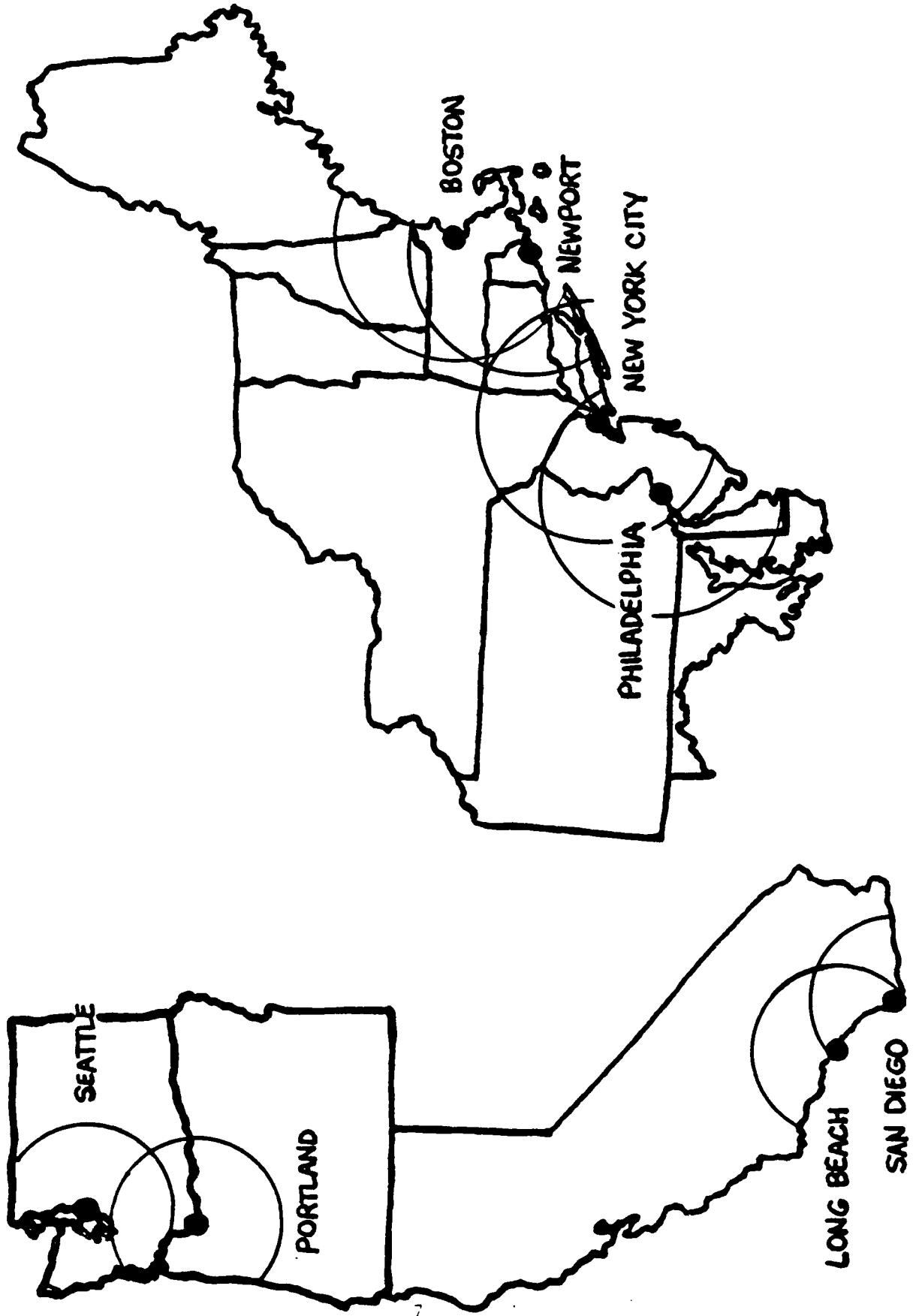
To make use of the Claritas data set for such a study, three steps must be taken. First, the geographic locations that are of importance to the study must be identified. This includes selecting the Reserve centers as well as selecting the radius that will define the geographic area. Second, the intersecting areas from those geographic locations must be identified. Last, a decision must be made as to how to handle the intersecting geographic supply areas. Should the geographic areas that overlap be combined into one area? Should their intersections be divided? Should they be examined separately?

In the SELRES availability study, which examined the supply areas within a 100-mile radius of these 14 ports, supply areas that intersect became one location. As a result, Seattle was paired with Portland; Long Beach, with San Diego; Philadelphia, with New York; and Newport, with Boston. Figure 1 shows that after this pairing, two areas still intersected— Philadelphia/New York and Newport/Boston. Those zip codes within the intersection were assigned to the closest port; if the ports were equidistant, they were assigned to the Philadelphia/New York area. The COBOL program, *one_location_per_zip*, which is listed in appendix B, incorporates this study's decisions in order to create a small data file that contains zip codes assigned to only one supply area. The smaller data file can be used to match personnel to a supply area.

TABLE 3

GEOGRAPHIC SUPPLY AREAS FOR SELRES PERSONNEL

Location	Other supply areas intersected
Boston, MA	Newport, RI; New York, NY
Charleston, SC	
Houston, TX	
Long Beach, CA	San Diego, CA
Mayport, FL	
New York, NY	Philadephia, PA; Boston, MA; Newport, RI;
Newport, RI	Boston, MA; New York, NY
Norfolk, VA	
Pearl Harbor, HI	
Philadelphia, PA	New York, NY
Portland, OR	Seattle, WA
San Diego, CA	Long Beach, CA
San Francisco, CA	
Seattle, WA	Portland, OR

FIG. 1: GEOGRAPHIC INTERSECTIONS OF SELRES SUPPLY AREAS

CONCLUSION

Although the Claritas data set was created in the summer of 1985, it is unclear when the zip codes were collected. Nonetheless, this data set can aid geographic studies whose areas of interest are among those listed in appendix A. Taking into account that zip codes may be assigned to more than one Reserve center, the Claritas data set can be manipulated for each study's specific needs.

APPENDIX A

AN ALPHABETICAL LISTING OF THE RESERVE CENTERS

APPENDIX A

AN ALPHABETICAL LISTING OF THE RESERVE CENTERS

Number	City	State	Zip code	Type*	Record count
1	ABILENE	TX	79602	NM	189
2	ADELPHI	MD	20783	N	1323
3	AKRON	OH	44310	NM	923
4	ALAMEDA	CA	94501	NM	519
5	ALBANY	GA	31704	M	334
6	ALBANY	NY	12203	NM	1263
7	ALBUQUERQUE	NM	87123	NM	156
8	ALEXANDRIA	LA	71301	N	390
9	ALTOONA	PA	16601	N	1263
10	AMARILLO	TX	79106	NM	136
11	ANACORTES	WA	98221	C	245
12	ANCHORAGE	AK	99506	N	28
13	ANNAPOLIS	MD	21402	M	1462
14	ARLINGTON	VA	22214	M	1298
15	ASHEVILLE	NC	28814	N	624
16	ASTORIA	OR	97103	C	296
17	ATLANTA	GA	30318	NM	563
18	ATLANTIC BEACH	NC	28512	C	173
19	ATLANTIC BEACH	NY	11509	C	1732
20	ATLANTIC CITY	NJ	08401	N	1087
21	AUGUSTA	GA	30904	NM	430
22	AUGUSTA	ME	04330	N	542
23	AURORA	CO	80011	N	286
24	AUSTIN	TX	78731	N	404
25	AVOCA	PA	18641	N	1955
26	AVON	NJ	07717	C	1654
27	BALTIMORE	MD	21230	N	1570
28	BANGOR	ME	04401	N	413
29	BARBERS POINT	HI	96862	N	40
30	BARNEGAT LIGHT	NJ	08006	C	1454
31	BARSTOW	CA	92311	M	428
32	BASKERSFIELD	CA	93301	NM	310
33	BATON ROUGE	LA	70807	NM	407
34	BATTLE CREEK	MI	49015	NM	701
35	BAY SHORE	NY	11706	C	1464
36	BEACH HAVEN	NJ	08008	C	1304
37	BEAUFORT	SC	29902	M	241
38	BELLE CHASSE	LA	70037	M	254
39	BESSEMER	AL	35020	NM	484
40	BILLINGS	MT	59101	NM	103

NOTE: N stands for a Naval Reserve Center; M, a Marine Corps Center; and C, a Coast Guard Center.

APPENDIX A (CONTINUED)

Number	City	State	Zip code	Type	Record count
41	BINGHAMTON	NY	13901	N	1136
42	BIRMINGHAM	AL	35203	C	486
43	BLOOMINGTON	IN	47401	N	782
44	BODEGA BAY	CA	94923	C	427
45	BOISE	ID	83702	NM	93
46	BOSTON	MA	02210	M	1077
47	BREMERTON	WA	98314	N	338
48	BRIDGETON	MO	63044	NM	691
49	BROKEN ARROW	OK	74012	NM	442
50	BRONX	NY	10465	NM	1836
51	BROOKLYN	NY	11234	C	1813
52	BROOKLYN	NY	11235	NM	1822
53	BRUNSWICK	ME	04011	N	606
54	BUFFALO	NY	14201	NM	497
55	BURLINGTON	VT	05401	N	557
56	BUTTE	MT	59702	N	102
57	BUZZARDS BAY	MA	02532	C	742
58	CADILLAC	MI	49601	N	318
59	CAMP LEJEUNE	NC	28542	M	249
60	CAMP PENDLETON	CA	92055	M	548
61	CAPE GIRARDEAU	MO	63701	N	626
62	CAPE MAY	NJ	08204	C	895
63	CARLSBAD	NM	88220	N	59
64	CECIL FIELD	FL	32215	N	238
65	CEDAR RAPIDS	IA	52402	N	631
66	CHARLESTON	SC	29408	NM	254
67	CHARLOTTE	NC	28202	NM	592
68	CHATHAM	MA	02633	C	476
69	CHATTANOOGA	TN	37405	NM	520
70	CHERRY POINT	NC	28533	M	219
71	CHEYENNE	WY	82009	N	187
72	CHICAGO	IL	60607	C	812
73	CHICAGO	IL	60625	M	802
74	CHICOPEE	MA	01022	N	1609
75	CHINA LAKE	CA	93555	N	117
76	CHINCOTEAGUE	VA	23336	C	587
77	CINCINNATI	OH	45207	NM	856
78	CLEARWATER	FL	33520	C	267
79	CLEVELAND	OH	44114	NM	750
80	CLIFTON	NJ	07011	N	2010

APPENDIX A (CONTINUED)

Number	City	State	Zip code	Type	Record count
81	COLTS NECK	NJ	07722	M	1758
82	COLUMBIA	PA	17512	M	1783
83	COLUMBIA	SC	29201	NM	478
84	COLUMBUS	GA	31902	N ·	416
85	COLUMBUS	OH	43213	NM	914
86	CONCORD	CA	94520	M	584
87	CONNELLSVILLE	PA	15425	M	1376
88	CORAOPOLIS	PA	15108	C	1412
89	CORONADO	CA	92155	N	261
90	CORPUS CHRISTI	TX	78419	N	128
91	CRISFIELD	MD	21817	C	863
92	CROSS LANES	WV	25313	N	1517
93	CUMBERLAND	MD	21502	N	1359
94	DALLAS	TX	75211	NM	485
95	DANIA	FL	33004	C	188
96	DANVILLE	IL	61832	NM	740
97	DAVISVILLE	RI	02854	N	1050
98	DAYTON	OH	45417	NM	862
99	DECATUR	IL	62525	N	715
100	DENVER	CO	80225	NM	295
101	DES MOINES	IA	50315	NM	577
102	DETROIT	MI	48214	NM	635
103	DOVER	NJ	07801	M	2119
104	DUBUQUE	IA	52001	N	632
105	DULUTH	MN	55802	N	256
106	EAST MORICHES	NY	11940	C	1336
107	EL PASO	TX	79930	NM	78
108	EL TORO	CA	92709	M	570
109	ELIZABETH	NJ	07202	N	1949
110	ELIZABETH CITY	NC	27909	C	438
111	ELLETTSVILLE	IN	47429	C	769
112	ENCINO	CA	91316	NM	512
113	ERIE	PA	16504	N	651
114	ESSEXVILLE	MI	48732	C	489
115	EUGENE	OR	97402	NM	208
116	EUREKA	CA	95501	C	100
117	EVANSVILLE	IN	47714	NM	677
118	EVERETT	WA	98201	N	301
119	FALLBROOK	CA	92028	M	537
120	FALLON	NV	89406	N	91

Number	City	State	Zip code	Type	Record count
121	FARGO	ND	58102	N	313
122	FAYETTEVILLE	AR	72701	N	505
123	FLINT	MI	48053	M	592
124	FOLSOM	PA	19033	NM	1841
125	FOREST PARK	GA	30050	C	520
126	FOREST PARK	IL	60130	N	820
127	FORT CARSON	CO	80913	N	259
128	FORT MONMOUTH	NJ	07703	M	1727
129	FORT SMITH	AR	72901	N	451
130	FORT TILDEN	NY	11695	C	1786
131	FORT WAYNE	IN	46808	NM	821
132	FREEMANSBURG	PA	18017	M	2148
133	FREEPORT	NY	11520	NC	1647
134	FRESNO	CA	93727	NM	214
135	FT. PIERCE	FL	33450	C	169
136	GADSDEN	AL	35903	N	604
137	GAINSVILLE	GA	30506	C	574
138	GALVESTON	TX	77550	M	301
139	GALVESTON	TX	77553	C	301
140	GARDEN CITY, L.I.	NY	11530	M	1706
141	GARY	IN	46403	NM	800
142	GLENS FALLS	NY	12801	N	1016
143	GLENVIEW	IL	60026	N	806
144	GLOUCESTER	MA	01930	C	979
145	GLOUCESTER CITY	NJ	08030	C	1837
146	GRAND RAPIDS	MI	49505	NM	481
147	GREAT FALLS	MT	59401	N	103
148	GREAT LAKES	IL	60088	N	794
149	GREEN BAY	WI	54304	NM	400
150	GREENSBORO	NC	27409	NM	613
151	GREENVILLE	SC	29601	NM	546
152	GROTON	CT	06349	N	1305
153	GULFPORT	MS	39501	N	270
154	GULFPORT	MS	39506	C	270
155	HAMPTON BAYS	NY	11946	C	1293
156	HANCOCK	MI	49930	C	130
157	HARLINGEN	TX	78550	N	69
158	HARRISBURG	PA	17110	NM	1662
159	HARTFORD	CT	06114	NM	1817
160	HIGHLANDS	NJ	07732	C	1764

Number	City	State	Zip code	Type	Record count
161	HOBE SOUND	FL	33455	C	192
162	HONOLULU	HI	96818	NM	40
163	HORSEHEADS	NY	14845	N	984
164	HOUGHTON	MI	49931	N	136
165	HOUSTON	TX	77054	N	382
166	HUDGINS	VA	23076	C	741
167	HULL	MA	02045	C	1002
168	HUNTINGTON	WV	25701	N	1545
169	HUNTINGTON, L.I.	NY	11743	NM	1595
170	HUNTSVILLE	AL	35801	N	524
171	HUTCHINSON	KS	67501	N	342
172	INDIANAPOLIS	IN	46208	NM	779
173	INDUSTRIAL AIRPORT	KS	66031	N	559
174	JACKSON	MS	39201	N	331
175	JACKSONVILLE	FL	32212	NM	227
176	JAMESTOWN	NY	14701	N	729
177	JOHNSON CITY	TN	37601	M	1070
178	JOHNSTOWN	PA	15906	N	1306
179	JOLIET	IL	60436	M	837
180	JONESPORT	ME	04649	C	235
181	JOPLIN	MO	64802	N	480
182	JUNEAU	AK	99802	C	14
183	KANEOHE BAY	HI	96863	M	41
184	KANSAS CITY	MO	64130	NM	571
185	KEARNY	NJ	07032	N	1969
186	KENNEWICK	WA	99336	C	146
187	KETCHIKAN	AK	99901	C	10
188	KEY WEST	FL	33040	N	18
189	KINGSPORT	TN	37660	N	1251
190	KNOXVILLE	TN	37901	NM	749
191	KODIAK	AK	99619	C	6
192	LA CROSSE	WI	54601	N	475
193	LAFAYETTE	LA	70508	NM	330
194	LAKEHURST	NJ	08733	N	1679
195	LANSING	MI	48912	NM	728
196	LAREDO	TX	78041	N	54
197	LAS VEGAS	NV	89104	NM	67
198	LAWRENCE	MA	01843	NM	1182
199	LEAVENWORTH	KS	66048	C	582
200	LEHIGH VALLEY	PA	18001	N	2152

Number	City	State	Zip code	Type	Record count
201	LEMOORE	CA	93245	N	209
202	LEWES	DE	19958	N	937
203	LEXINGTON	KY	40582	N	1132
204	LINCOLN	NE	68508	N	535
205	LONG BEACH	CA	90801	M	550
206	LONG BEACH	CA	90822	NM	548
207	LOS ALAMITOS	CA	90720	M	557
208	LOS ANGELES	CA	90012	NM	527
209	LOUISVILLE	KY	40214	NM	781
210	LUBBOCK	TX	79415	NM	157
211	LYNCHBURG	VA	24502	M	686
212	MACON	GA	31208	N	485
213	MADISON	WI	53704	NM	680
214	MAHTOMEDI	MN	55115	C	534
215	MANCHESTER	NH	03102	NM	1265
216	MANSFIELD	OH	44905	N	898
217	MARIETTA	GA	30060	N	572
218	MAUI	HI	96761	C	53
219	MAYPORT	FL	32228	N	229
220	MCKEESPORT	PA	15132	N	1401
221	MCKINLEYVILLE	CA	95521	C	110
222	MEDFORD	OR	97501	N	123
223	MEMPHIS	TN	38112	N	527
224	MERIDIAN	MS	39309	N	373
225	MIAMI	FL	33133	N	185
226	MIAMI BEACH	FL	33139	C	185
227	MIDLAND	TX	79705	N	97
228	MILLINGTON	TN	38054	N	526
229	MILWAUKEE	WI	53207	NM	701
230	MINNEAPOLIS	MN	55450	NM	561
231	MIRAMAR	CA	92145	N	380
232	MISSOULA	MT	59801	N	95
233	MOBILE	AL	36608	NM	256
234	MOFFETT FIELD	CA	94035	N	487
235	MOLINE	IL	61265	M	689
236	MONROE	LA	71201	N	336
237	MONTAUK	NY	11954	C	1024
238	MONTEREY	CA	93943	N	321
239	MONTGOMERY	AL	36107	NM	466
240	MOREHEAD CITY	NC	28557	C	176

Number	City	State	Zip code	Type	Record count
241	MORRO BAY	CA	93442	C	107
242	MOUNTLAKE TERRANCE	WA	98043	C	326
243	MT. CLEMENS	MI	48043	N	555
244	MUSKEGON	MI	49441	N	434
245	N. LITTLE ROCK	AR	72118	NM	452
246	NARRAGANSETT	RI	02882	C	994
247	NASHVILLE	TN	37206	N	499
248	NEW BEDFORD	MA	02741	N	828
249	NEW CASTLE	PA	16101	M	1289
250	NEW HAVEN	CT	06512	NM	1679
251	NEW ORLEANS	LA	70146	NM	284
252	NEW ROCHELLE	NY	10801	NM	1833
253	NEW SMYRNA BEACH	FL	32069	C	254
254	NEW YORK	NY	10036	N	1905
255	NEWBURYPORT	MA	09150	C	1105
256	NEWPORT	OR	97365	C	227
257	NEWPORT	RI	02841	N	975
258	NEWPORT NEWS	VA	23607	M	643
259	NIAGARA FALLS	NY	14304	C	446
260	NORFOLK	VA	23511	NM	606
261	NORFOLK	VA	23520	NM	571
262	NORMAN	OK	73069	M	391
263	NORTH BEND	OR	97459	C	132
264	NORTH ISLAND	CA	92135	N	287
265	NORTHPORT	NY	11768	C	1569
266	OAHU	HI	96861	M	40
267	OAK HARBOR	WA	98278	N	270
268	OCEAN CITY	MD	21842	C	558
269	OCEAN CITY	NJ	08226	C	979
270	OCEANA	VA	23460	N	522
271	OGDEN	UT	84401	N	160
272	OKLAHOMA CITY	OK	73110	N	410
273	OMAHA	NE	68111	NM	561
274	OPA LOCKA	FL	33054	C	195
275	ORANGE	TX	77630	NM	265
276	ORLANDO	FL	32803	NM	330
277	OSHKOSH	WI	54901	N	481
278	OTIS AFB	MA	02542	C	718
279	OWENSBORO	KY	42301	C	673
280	OXNARD	CA	93030	C	438

Number	City	State	Zip code	Type	Record count
281	PACIFIC GROVE	CA	93950	N	318
282	PADUCHA	KY	42001	C	599
283	PALM COAST	FL	32037	C	260
284	PANAMA CITY	FL	32401	C	159
285	PARKERSBURG	WV	26101	N	1199
286	PARRIS ISLAND	SC	29905	M	241
287	PASADENA	CA	91107	M	529
288	PASCO	WA	99301	N	152
289	PATUXENT RIVER	MD	20670	N	1119
290	PEARL HARBOR	HI	96860	N	40
291	PENSACOLA	FL	32509	N	234
292	PEORIA	IL	61604	NM	729
293	PERTH AMBOY	NJ	08861	N	1944
294	PHILADELPHIA	PA	19112	N	1854
295	PHILADELPHIA	PA	19154	NM	1936
296	PHOENIX	AZ	85009	NM	164
297	PICO-RIVERA	CA	90660	M	537
298	PITTSBURGH	PA	15213	NM	1400
299	PITTSFIELD	MA	01201	N	1450
300	PLOVER	WI	54467	N	467
301	POCATELLO	ID	83201	N	156
302	POINT MUGU	CA	93042	N	444
303	POINT PLEASANT	NJ	08742	C	1601
304	POMONA	CA	91766	N	556
305	PORT ANGELES	WA	98362	C	280
306	PORT ARTHUR	TX	77643	C	294
307	PORT HUENEME	CA	93043	N	437
308	PORT ISABEL	TX	78578	C	52
309	PORT JEFFERSON	NY	11777	C	1501
310	PORTLAND	ME	04104	N	722
311	PORTLAND	OR	97217	NM	323
312	PORTSMOUTH	NH	03801	N	1046
313	PORTSMOUTH	OH	45662	N	1300
314	PORTSMOUTH	VA	23703	C	603
315	POUGHKEEPSIE	NY	12601	N	1925
316	PROVIDENCE	RI	02905	NM	1072
317	QUANTICO	VA	22134	M	1198
318	QUINCY	MA	02169	N	1045
319	RALEIGH	NC	27606	NM	544
320	RAVENNA	OH	44266	N	952

Number	City	State	Zip code	Type	Record count
321	READING	PA	19611	NM	1842
322	REHOBOTH BEACH	DE	19971	C	841
323	RENO	NV	89506	NM	203
324	RICHMOND	VA	23234	NM	880
325	RIO VISTA	CA	94571	C	614
326	RIVIERA BEACH	FL	33404	N	201
327	ROANOKE	VA	24019	NM	912
328	ROCHESTER	NY	14624	NM	623
329	ROCK ISLAND	IL	61201	NM	688
330	ROCKLAND	ME	04841	C	460
331	RODANTHE	NC	27968	C	146
332	ROME	GA	30163	M	590
333	ROME	NY	13440	N	796
334	SACRAMENTO	CA	95828	NM	634
335	SAGINAW	MI	48601	N	548
336	SAINT MARYS	GA	31558	N	200
337	SALEM	OR	97301	NM	292
338	SALT LAKE CITY	UT	84113	NM	169
339	SAN ANTONIO	TX	78204	NM	298
340	SAN BERNARDINO	CA	92401	NM	555
341	SAN BRUNO	CA	94066	NM	476
342	SAN DIEGO	CA	92133	N	319
343	SAN DIEGO	CA	92140	M	302
344	SAN JOSE	CA	95112	NM	498
345	SAN PEDRO	CA	90731	C	538
346	SAN RAFAEL	CA	94903	M	496
347	SANTA ANA	CA	92705	N	572
348	SANTA BARBARA	CA	93109	N	327
349	SANTA ROSA	CA	95403	M	504
350	SAULT STE. MARIE	MI	49783	C	78
351	SAVANNAH	GA	31404	N	225
352	SCITUATE	MA	02066	C	922
353	SCOTIA	NY	12302	N	1141
354	SEAL BEACH	CA	90740	N	556
355	SEATTLE	WA	98109	N	336
356	SEATTLE	WA	98115	N	332
357	SHAWNEE MISSION	KS	66208	C	567
358	SHEBOYGAN	WI	53081	N	473
359	SHREVEPORT	LA	71109	NM	358
360	SIOUX CITY	IA	51106	N	508

Number	City	State	Zip code	Type	Record count
361	SIOUX FALLS	SD	57104	N	410
362	SITKA	AK	99835	C	16
363	SMYRNA	TN	37167	C	521
364	SOUTH BEND	IN	46613	NM	769
365	SOUTH CHARLESTON	WV	25303	C	1500
366	SOUTH WEYMOUTH	MA	02190	N	1005
367	SOUTHFIELD	MI	48034	N	616
368	SOUTHPORT	NC	28461	C	180
369	SOUTHWEST HARBOR	ME	04679	C	351
370	SPOKANE	WA	99208	NM	227
371	SPRINGFIELD	MO	65802	NM	510
372	SPRINGLAKE	NJ	07762	C	1637
373	ST. CHARLES	MO	63303	C	684
374	ST. INIGOES	MD	20684	C	1078
375	ST. JOSEPH	MO	64501	N	604
376	ST. PAUL	MN	55111	NMC	566
377	ST. PETERSBURG	FL	33701	N	265
378	ST. SIMONS ISLAND	GA	31522	C	175
379	STATEN ISLAND	NY	10305	N	1854
380	STAUNTON	VA	24401	N	794
381	STILLPOND	MD	21678	C	1620
382	STILLWATER	OK	74074	N	419
383	STOCKTON	CA	95203	N	604
384	SYRACUSE	NY	13211	NM	766
385	TALLAHASSEE	FL	32304	NM	209
386	TAMPA	FL	33602	N	293
387	TAMPA	FL	33611	M	287
388	TERRE HAUTE	IN	47803	N	706
389	TEXARKANA	TX	75501	M	365
390	TOCOMA	WA	98421	NM	353
391	TOLEDO	OH	43611	NM	779
392	TOPEKA	KS	66607	NM	555
393	TOWNSEND INLET	NJ	08243	C	995
394	TRAVERSE CITY	MI	49684	C	247
395	TREASURE ISLAND	CA	94130	NM	516
396	TUCSON	AZ	85732	NM	108
397	TUSCALOOSA	AL	35403	N	468
398	TUSTIN	CA	92710	M	572
399	TWENTYNINE PALMS	CA	92278	M	198
400	TYLER	TX	75701	N	423

Number	City	State	Zip code	Type	Record count
401	VALLEJO	CA	94592	N	554
402	WACO	TX	76707	NM	476
403	WARRENTON	OR	97146	C	278
404	WASHINGTON	DC	20374	NM	1314
405	WASHINGTON	DC	20390	M	1301
406	WATERLOO	IA	50703	NM	609
407	WATERTOWN	NY	13601	N	466
408	WEST BOOTHBAY HARBOR	ME	04575	C	541
409	WEST PALM BEACH	FL	33401	M	197
410	WEST TRENTON	NJ	08628	NM	1998
411	WHEELING	WV	26003	NMC	1381
412	WICHITA	KS	67210	N	360
413	WICHITA FALLS	TX	76301	N	267
414	WILLETS POINT	NY	11359	C	1808
415	WILLIAMSPORT	PA	17701	N	1161
416	WILLOW GROVE	PA	19090	N	2004
417	WILMINGTON	DE	19808	NM	1769
418	WILMINGTON	NC	28401	N	237
419	WOODS HOLE	MA	02543	C	707
420	WORCESTER	MA	01605	NM	1331
421	WRIGHTSVILLE BEACH	NC	28480	C	233
422	WYOMING	PA	18644	M	1739
423	YAKIMA	WA	98902	M	203
424	YORKTOWN	VA	23691	M	708
425	YOUNGSTOWN	OH	44507	N	1191
426	YUMA	AZ	85369	M	36
	TOTAL				290801

APPENDIX B

THE COBOL PROGRAM, *ONE_LOCATION_PER_ZIP*

```
IDENTIFICATION DIVISION.
PROGRAM-ID.      ONE_LOCATION_PER_ZIP.
AUTHOR.          DAVID REESE.
INSTALLATION.    CNA.
SECURITY.        UNCLASSIFIED.


*  INFILE:  "CLARITAS-ZIPCODES"
*      This is the Claritas data set which contains
*      all the zip codes within 100 miles of 426 Reserve
*      centers.  This program is interested only in the
*      following locations: Boston, Charleston, New York
*      City, Houston, Long Beach, Norfolk, Philadelphia,
*      Portland (OR), San Diego, San Francisco, Seattle,
*      Newport, Mayport, and Pearl Harbor. (Philadelphia,
*      Seattle, and Norfolk each have two Naval Reserve
*      Centers.)


*  OUTFILE:  TEN_LOC_ZIP.DAT
*      Because of the proximity of some Reserve centers,
*      several locations are grouped together--Philadelphia,
*      and New York City, Newport and Boston, Seattle and
*      Portland, San Diego and Long Beach--in attempt to
*      establish mutually exclusive areas.  However, New
*      York City and Newport do overlap; any zip code within
*      this area is assigned to the closest Reserve; if they
*      are equidistant, New York City with its greater demand
*      is chosen.
*


ENVIRONMENT DIVISION.

INPUT-OUTPUT SECTION.
FILE-CONTROL.
        SELECT INFILE    ASSIGN TO 'IFILE'.
        SELECT OUTFILE   ASSIGN TO 'OFILE'.
        SELECT SORTFILE  ASSIGN TO 'SFILE'.
        SELECT PRINTFILE ASSIGN TO 'PFILE'.


DATA DIVISION.
```

```
FILE SECTION.

*-----------*-----------*-----------*-----------*
*    File Name:  "CLARITAS-ZIPCODES"

FD  INFILE
    RECORD CONTAINS 45 CHARACTERS
    BLOCK CONTAINS 100 RECORDS
    DATA RECORD IS INREC.

01  INREC.
    03   RESERVE-NUMBER      PIC Z(3).
    03   RESERVE-CITY        PIC X(20).
    03   RESERVE-STATE       PIC X(2).
    03   RESERVE-ZIPCODE     PIC 9(5).
    03   NAVAL-FLAG          PIC 9(1).
    03   MARINE-CORPS-FLAG   PIC 9(1).
    03   COAST-GUARD-FLAG    PIC 9(1).
    03   A-ZIPCODE           PIC 9(5).
    03   DISTANCE            PIC 999V9.
    03   RESERVE-COUNT       PIC 9(2).
    03   CLOSEST-RESERVE     PIC 9(1).

*-----------*-----------*-----------*-----------*
*    File Name:  TEN_LOC_ZIP.DAT

FD  OUTFILE
    RECORD CONTAINS 8 CHARACTERS
    DATA RECORD IS OUTREC.

01  OUTREC.
    03   LOCATION            PIC Z(3).
    03   A-ZIPCODE           PIC 9(5).

*-----------*-----------*-----------*-----------*

SD  SORTFILE
    RECORD CONTAINS 12 CHARACTERS
    DATA RECORD IS SORTREC.

01  SORTREC.
    03   LOCATION            PIC Z(3).
    03   A-ZIPCODE           PIC 9(5).
    03   DISTANCE            PIC 999V9.

*-----------*-----------*-----------*-----------*

FD  PRINTFILE
    DATA RECORD IS PRINTLINE.
01  PRINTLINE               PIC X(81).
```

```
WORKING-STORAGE SECTION.
*    The input procedure uses counters-input; the
*    output procedure uses counters-output; both
*    procedures use reserve-table, reserve-cnt-table,
*    and statement.

01   COUNTERS-INPUT.
     05   EOF                       PIC 9(1)   USAGE COMP.
     05   INCNT                     PIC 9(8)   USAGE COMP.
     05   NOT-SELECTED-CNT          PIC 9(8)   USAGE COMP.
     05   INCNT-SORT                PIC 9(8)   USAGE COMP.

01   COUNTERS-OUTPUT.
     05   EOF-SORT                  PIC 9(1)   USAGE COMP.
     05   OUTCNT                    PIC 9(8)   USAGE COMP.
     05   OUTCNT-SORT               PIC 9(8)   USAGE COMP.
     05   ZIPCODE-HOLD              PIC 9(5).

*    The Reserve numbers and their locations:
*         46 Boston                 290 Pearl Harbor
*         66 Charleston             294 Philadelphia
*        165 Houston                295 Philadelphia
*        206 Long Beach             311 Portland, OR
*        219 Mayport                342 San Diego
*        254 New York City          355 Seattle
*        257 Newport                356 Seattle
*        260 Norfolk                395 Treasure Island
*        261 Norfolk                    (San Francisco)

01   RESERVE-NUMBER-CONSTANTS       PIC X(68)
     VALUE IS "   46   66 165 206 219 254 257 260 261
-              " 290 294 295 311 342 355 356 395".
01   RESERVE-TABLE REDEFINES RESERVE-NUMBER-CONSTANTS.
     05   RESERVE-DATA OCCURS 17 TIMES
                     ASCENDING KEY IS RESERVE-NO
                     INDEXED BY LOCATION-INDX.
          10   BLANK-SPACE          PIC X(1).
          10   RESERVE-NO           PIC Z(3).

01   RESERVE-CNT-TABLE.
     05   RESERVE-CNT OCCURS 17 TIMES
                     INDEXED BY CNT-INDX PIC 9(5).

01   STATEMENT.
     05   VAR-LABEL                 PIC X(35).
     05   VAR-NUMBER-1              PIC Z(9)9(1).
     05   VAR-NUMBER-2              PIC Z(9)9(1).


PROCEDURE DIVISION.
```

```
SORTER SECTION.
OVERALL-STRUCTURE.
    SORT SORTFILE
        ON ASCENDING KEY A-ZIPCODE OF SORTREC
                          DISTANCE OF SORTREC
                          LOCATION OF SORTREC
    INPUT PROCEDURE
        IS INPUT-PROC
        THRU INPUT-PROC-EXIT
    OUTPUT PROCEDURE
        IS OUTPUT-PROC
        THRU OUTPUT-PROC-EXIT.
EXIT-OVERALL-STRUCTURE.
    EXIT.

INPUT-PROC SECTION.
INPUT-STRUCTURE.
    PERFORM 100-BEGIN-INPUT.
    PERFORM 300-MAIN-INPUT-PROCESS
        UNTIL (EOF = 1).
    PERFORM 400-END-INPUT-PROC.
    GO TO INPUT-PROC-EXIT.
EXIT-INPUT-STRUCTURE.
    EXIT.

100-BEGIN-INPUT.
    OPEN INPUT  INFILE
         OUTPUT PRINTFILE.
    INITIALIZE COUNTERS-INPUT, RESERVE-CNT-TABLE.
    PERFORM 200-READ-FILE.

200-READ-FILE.
    READ INFILE
        AT END MOVE 1 TO EOF.

300-MAIN-INPUT-PROCESS.
    ADD 1 TO INCNT.
    SEARCH ALL RESERVE-DATA
        AT END
            ADD 1 TO NOT-SELECTED-CNT
        WHEN (RESERVE-NO(LOCATION-INDX) = RESERVE-NUMBER)
            PERFORM 325-SELECT-THIS-RECORD.
    PERFORM 200-READ-FILE.

325-SELECT-THIS-RECORD.
    SET CNT-INDX TO LOCATION-INDX.
    ADD 1 TO RESERVE-CNT(CNT-INDX).
    MOVE CORRESPONDING INREC TO SORTREC.
    PERFORM 350-GROUP-ZIPCODES.
    RELEASE SORTREC.
    ADD 1 TO INCNT-SORT.
```

```
350-GROUP-ZIPCODES.
*    Location codes are assigned in this paragraph.
*    Notice that the location code is the Reserve-number
*    and that some areas are being combined. For example,
*    San Diego's records (342) are assigned the same
*    location as Long Beach (206).

     IF (RESERVE-NUMBER = 342)
         MOVE 206 TO LOCATION OF SORTREC
     ELSE IF (RESERVE-NUMBER = 294) OR (RESERVE-NUMBER = 295)
         MOVE 254 TO LOCATION OF SORTREC
     ELSE IF (RESERVE-NUMBER = 261)
         MOVE 260 TO LOCATION OF SORTREC
     ELSE IF (RESERVE-NUMBER = 355) OR (RESERVE-NUMBER = 356)
         MOVE 311 TO LOCATION OF SORTREC
     ELSE IF (RESERVE-NUMBER = 46)
         MOVE 257 TO LOCATION OF SORTREC
     ELSE
         MOVE RESERVE-NUMBER TO LOCATION OF SORTREC.

400-END-INPUT-PROC.
     PERFORM 450-WRITE-RESULTS.
     CLOSE INFILE, PRINTFILE.

450-WRITE-RESULTS.
     MOVE SPACES TO STATEMENT.
     MOVE "NUMBER OF INFILE RECORDS" TO VAR-LABEL.
     MOVE INCNT TO VAR-NUMBER-1.
         WRITE PRINTLINE FROM STATEMENT AFTER 3 LINES.
     MOVE "NUMBER OF SORT RECORDS" TO VAR-LABEL.
     MOVE INCNT-SORT TO VAR-NUMBER-1.
         WRITE PRINTLINE FROM STATEMENT.
     MOVE "NUMBER OF RECORDS REJECTED" TO VAR-LABEL.
     MOVE NOT-SELECTED-CNT TO VAR-NUMBER-1.
         WRITE PRINTLINE FROM STATEMENT.
     MOVE "VALUE OF END-OF-FILE" TO VAR-LABEL.
     MOVE EOF TO VAR-NUMBER-1.
         WRITE PRINTLINE FROM STATEMENT.

     MOVE SPACES TO STATEMENT.
     MOVE "NUMBER OF ZIPS PER RESERVE:" TO VAR-LABEL.
     SET LOCATION-INDX,CNT-INDX TO 1.
     PERFORM 460-WRITE-RESERVE-TOTALS
         17 TIMES.

460-WRITE-RESERVE-TOTALS.
     MOVE RESERVE-CNT(CNT-INDX) TO VAR-NUMBER-1.
     MOVE RESERVE-NO(LOCATION-INDX) TO VAR-NUMBER-2.
     WRITE PRINTLINE FROM STATEMENT.
     SET LOCATION-INDX,CNT-INDX UP BY 1.
     MOVE SPACES TO STATEMENT.

INPUT-PROC-EXIT SECTION.
```

```
OUTPUT-PROC SECTION.
*       The file at this point is sorted by A-zipcode,
*   Distance, and Location.  By taking only the first
*   occurrence of each A-zipcode, duplicate records
*   will be eliminated.  Remember that for each zip
*   code within an intersecting area, more than one
*   record will be collected.  The zip codes in New
*   York City and Philadelphia are assigned 254; the
*   zip codes in Boston and Newport, 257.  For any
*   zip code that falls within both areas, the first
*   record will point to the closest Reserve center;
*   if they are equidistant, it will point to the
*   New York City/Philadelphia area--just what the
*   analyst ordered.

OUTPUT-STRUCTURE.
    PERFORM 500-BEGIN-OUTPUT.
    PERFORM 700-MAIN-OUTPUT-PROCESS
        UNTIL (EOF-SORT = 1).
    PERFORM 1000-END-OUTPUT-PROC.
    STOP RUN.
EXIT-OUTPUT-STRUCTURE.
     EXIT.

500-BEGIN-OUTPUT.
    OPEN OUTPUT OUTFILE, PRINTFILE.
    INITIALIZE COUNTERS-OUTPUT, RESERVE-CNT-TABLE.
    PERFORM 600-READ-SORT-FILE.

600-READ-SORT-FILE.
    RETURN SORTFILE
        AT END MOVE 1 TO EOF-SORT
                SUBTRACT 1 FROM OUTCNT-SORT.
    ADD 1 TO OUTCNT-SORT.

700-MAIN-OUTPUT-PROCESS.
    MOVE A-ZIPCODE OF SORTREC TO ZIPCODE-HOLD.
    PERFORM 750-COUNT-ZIPS.
    MOVE CORRESPONDING SORTREC TO OUTREC.
    ADD 1 TO OUTCNT.
    WRITE OUTREC.
    INITIALIZE OUTREC.
    PERFORM 600-READ-SORT-FILE
        UNTIL (A-ZIPCODE OF SORTREC > ZIPCODE-HOLD)
        OR (EOF-SORT = 1).

750-COUNT-ZIPS.
    SEARCH ALL RESERVE-DATA
        AT END
            PERFORM 900-WRITE-ERROR
        WHEN RESERVE-NO(LOCATION-INDX) = LOCATION OF SORTREC
            SET CNT-INDX TO LOCATION-INDX
            ADD 1 TO RESERVE-CNT(CNT-INDX).
```

```
900-WRITE-ERROR.
    DISPLAY " ".
    DISPLAY "*** ERROR IN RESERVE NUMBER ***".
    DISPLAY "    RESERVE NUMBER IS  ", LOCATION OF SORTREC.

1000-END-OUTPUT-PROC.
    PERFORM 1100-WRITE-RESULTS.
    CLOSE OUTFILE, PRINTFILE.

1100-WRITE-RESULTS.
    MOVE SPACES TO STATEMENT.
    MOVE "NUMBER OF OUTFILE RECORDS" TO VAR-LABEL.
    MOVE OUTCNT TO VAR-NUMBER-1.
        WRITE PRINTLINE FROM STATEMENT AFTER 3 LINES.
    MOVE "NUMBER OF RECORDS FROM SORT FILE" TO VAR-LABEL.
    MOVE OUTCNT-SORT TO VAR-NUMBER-1.
        WRITE PRINTLINE FROM STATEMENT.
    MOVE SPACES TO PRINTLINE.
        WRITE PRINTLINE AFTER 3 LINES.

    MOVE SPACES TO STATEMENT.
    MOVE "NUMBER OF ZIPS PER RESERVE:" TO VAR-LABEL.
    SET LOCATION-INDX,CNT-INDX TO 1.
    PERFORM 1200-WRITE-RESERVE-TOTALS
        17 TIMES.

1200-WRITE-RESERVE-TOTALS.
    MOVE RESERVE-CNT(CNT-INDX) TO VAR-NUMBER-1.
    MOVE RESERVE-NO(LOCATION-INDX) TO VAR-NUMBER-2.
    WRITE PRINTLINE FROM STATEMENT.
    SET LOCATION-INDX,CNT-INDX UP BY 1.
    MOVE SPACES TO STATEMENT.

OUTPUT-PROC-EXIT SECTION.
```